In the Claims:

Please amend the claims as follows:

1. (Currently Amended) A method for maximizing group membership comprising:

~~(a)~~ calculating a connectivity count of each vertex in a graph, wherein each vertex represents a single item in a multiple item set;

placing vertices in decreasing order of connectivity based upon said calculated connectivity count of each vertex in said graph;

~~(b)~~ determining a maximum connectivity count ~~for each vertex~~ from said ordering of vertices, wherein said maximum connectivity count is a greatest integer of connectivity of said vertices obtained from said ordering of vertices ~~calculation~~; ~~and~~

comparing the connectivity count of each vertex in said graph with the maximum connectivity count in the graph;

~~(c)~~ removing a vertex from said graph with said calculated connectivity count less than said maximum connectivity count; and

returning a grouping of interconnected vertices, wherein each vertex in said grouping is connected to each other vertex in said grouping, and a quantity of interconnection is equal to said maximum connectivity count.

2. (Original) The method of claim 1, further comprising updating said connectivity count for all remaining vertices in said graph following removal of a single vertex from said graph.

3. (Original) The method of claim 1, further comprising individually removing all vertices with said connectivity count less than said maximum connectivity count in said graph.

4. (Original) The method of claim 1, further comprising removing all vertices in said graph until said connectivity count of a least connected vertex is equal to said maximum connectivity count.

5. (Currently Amended) The method of claim 1, wherein said vertex is selected from a group

consisting of: a computing node, components on a circuit board, division of points in a pattern, and partitions of items~~, and combinations thereof~~.

6. (Currently Amended) The method of claim 1, wherein said graph is selected from a group consisting of: a cluster of nodes, circuit board components, pattern recognition, biological data, archeological data, project selection, ~~classification,~~ fault tolerance, coding, computer vision, ~~economics,~~ information retrieval, signal transmission, and alignment of DNA with protein sequences~~, and combinations thereof~~.

7. (Currently Amended) A system to determine a maximum group membership comprising:

a counter for calculating a connectivity count for each vertex in a graph;

~~means for~~ placement of each vertex in descending order of connectivity based on said calculated connectivity count; ~~and~~

a maximum connectivity count for said order of vertices, wherein said maximum connectivity count is a largest integer of connectivity of said vertices obtained from said order of vertices;

a comparison of each vertex in said graph with said maximum connectivity count; and

~~means for~~ removal of a vertex from said graph with said connectivity count less than said ~~that a~~ maximum connectivity count to form a group of interconnected vertices .

8. (Currently Amended)The system of claim 7, further comprising ~~means for~~ an update of connectivity for each of said vertices subsequent to said removal of a vertex from said graph.

9. (Original) The system of claim 7, wherein removal of a vertex from said graph with said connectivity count less than said maximum connectivity count in said graph is continuous until said connectivity count of a least connected vertex is equal to said maximum connectivity count.

10. (Currently Amended) The system of claim 7, wherein said vertex is selected from a group consisting of: a computing node, components on a circuit board, division of points in a pattern, and partitions of items~~, and combinations thereof~~.

11. (Currently Amended) The system of claim 7, wherein said graph is selected from a group consisting of: a cluster of nodes, circuit board components, pattern recognition, biological data, archeological data, project selection, ~~classification,~~ fault tolerance, coding, computer vision, ~~economics,~~ information retrieval, signal transmission, and alignment of DNA with protein sequences~~, and combinations thereof~~.

12. (Currently Amended) An article comprising:

a computer-readable recordable data storage ~~signal-bearing~~ medium;

means in the medium for calculating connectivity for each vertex in a graph;

means in the medium for placing vertices in decreasing order of connectivity based upon said calculated connectivity count of each vertex in said graph;

means in the medium for determining a maximum connectivity count from said ordering of vertices, wherein said maximum connectivity count is a greatest integer of connectivity of said vertices obtained from said ordering of vertices;

means in the medium for selecting a least connected vertex for removal from a clique in said graph; and

means in the medium for removing said least connected vertex from said graph to return a group of interconnected vertices with an interconnection quantity equal to said maximum connectivity count.

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14. (Currently Amended) The article of claim 12, wherein said means for selecting a least connected vertex for removal from a clique in said graph includes comparing a connectivity count of said least connected vertex with said maximum connectivity count obtained from placing vertexes of a graph in descending order.

15. (Original) The article of claim 12, further comprising means in the medium for updating

connectivity for each remaining vertex in said graph subsequent to removal of said least connected vertex.

16. (Currently Amended) The article of claim 12, wherein said vertex is selected from a group consisting of: a computing node, components on a circuit board, division of points in a pattern, and partitions of items~~, and combinations thereof~~.

17. (Currently Amended) The article of claim 12, wherein said graph is selected from a group consisting of: a cluster of nodes, circuit board components, pattern recognition, biological data, archeological data, project selection, ~~classification,~~ fault tolerance, coding, computer vision, ~~economics,~~ information retrieval, signal transmission, and alignment of DNA with protein sequences~~, and combinations thereof~~.